characteristic and treatment levels for the hazardous waste are 1.0 mg/l. Assume that a stream of 3.0 mg/l daily deposits 1000 liters into a treatment facility. A RCRA treatment facility would remove at least 2000 mg of cadmium from the waste stream. A CWA must do the same—although to do so it will have to process at least three times as much water (because dilution of 1000 liters of 3.0 mg/l to just below the characteristic level will yield just over 3000 liters). Allowing dilution alone would decharacterize the waste, but it would not reduce the total amount of cadmium entering the environment. 976 F 2d at 23 n. 8.

Applying this same standard to injection of decharacterized wastewaters into Class I nonhazardous injection wells, the court stated:

(W)e hold that dilution followed by injection into a deep well is permissible only where dilution itself fully meets section 3004(m)(l) standards or where the waste will subsequently meet section 3004(m)(l) standards. Because deep well injection is permanent land disposal, our holding in effect permits diluted decharacterized wastes to be deep well injected only when dilution meets the section 3004(m)(l) standard or where the deep well secures a no-migration variance. 976 F. 2d at 25. This means that "any hazardous waste (must) be treated in such a way that hazardous constituents are removed from the waste before it enters the environment." 976 F. 2d at 24 (emphasis added). Since injection wells are disposal units and do not engage in treatment, they are incapable of satisfying this standard. Id.

EPA believes that the thrust of the opinion is to require treatment of hazardous constituents before land disposal. The court's explicit and quantified insistence that treatment standards are to reduce mass loadings of hazardous constituents makes this clear. If the court intended to allow dilution as the sole means of treating hazardous constituents, it would at least have discussed how this squared with statutory language, goals and objectives, and legislative history. Thus, the Agency does not accept the commenters' reading of the opinion. Today's rule consequently proposes that prohibited, decharacterized wastes be treated so that underlying hazardous constituents are removed, destroyed, or immobilized before final disposal into the environment.

III. Integration of BDAT With Other Agency Actions

As EPA makes decisions in this LDR Phase III rule on so-called end-of-pipe equivalence for direct and indirect dischargers treating prohibited, decharacterized wastes in surface impoundments, there are related Agency rulemaking activities warranting mention: The LDR Phase IV rule, which

will consider leaks, sludges, and air emissions from surface impoundments; the Hazardous Waste Identification Rule (HWIR), which provides a risk based assessment of when wastes are hazardous, and may result in capping the extent of treatment of some hazardous constituents; the Pulp and Paper and Pharmaceutical Industries effluent limitations guidelines which affect industries using impoundmentbased treatment systems to manage decharacterized wastes; and rules for control of hazardous air pollutants issued under the Clean Air Act (CAA), which regulate similar air emissions. These interrelationships are explored below, so that the public can be made aware of how future regulations may impact decisions to be made in response to this rule. Comments and data are requested on the LDR Phase IV options discussed in this part.

A. Phase IV LDRs—Cross-Media Transfer and Equivalency Issues

1. Cross-Media Implications

The LDR Phase IV rule will consider equivalent treatment for centralized wastewater treatment systems with impoundments managing wastewaters that are decharacterized. The principle potentially at issue is the transfer of pollutants from one media to another without being destroyed, removed, or immobilized. Treatment of the wastewaters transfers the pollutants, to groundwater from leaks, or to the air. The transfer of pollutants from one media to another is an Agency-wide concern. The environment is not well served by piecemeal regulation which simply transfers pollutants, nor is industry well-served by piecemeal regulation. The Agency's preference is to look at these situations holistically so that pollutants are not simply transferred, and so that the Agency provides industry with a coordinated understanding of the "environmental requirements" for all media. How the Agency pursues this preference has not been decided, but the following discussion outlines some of the issues being examined.

2. Background of Equivalency Issues EPA is Considering for LDR Phase IV

EPA is considering, in addition to evaluating equivalence at the point of ultimate discharge to surface waters or to a Publicly-Owned Treatment Works (POTWs) ("end-of-pipe equivalence"), conditions for determining equivalence of treatment for decharacterized wastes managed in nonhazardous waste (subtitle D) surface impoundments which would involve consideration of

whether treatment is not equivalent due to cross-media transfers of untreated hazardous constituents. In evaluating the above approaches, EPA is looking both at RCRA and other Agency authorities and programs that would ensure protection and provide control equivalent to RCRA.

The Agency has not made any determination as to the best manner to implement the standard enunciated in the opinion. It is certain that the opinion requires at least a demonstration of end-of-pipe equivalence, which will be accomplished when the treatment standards in today's proposed rule are finalized. Whether it requires more is unclear. The opinion appears to focus on treatment of wastewaters. For example, the court stated "treatment of solid wastes in a CWA surface impoundment must meet RCRA requirements prior to ultimate discharge into waters of the United States or publicly owned treatment works * * * .'' 976 F. 2d at 20, emphasis added). See also id. at 7, 20 (focus on treatment of waste "streams", i.e. the liquids in the impoundment); 23 n. 8 (reduction of mass loadings of hazardous constituents of waste stream entering and exiting an impoundment); 24 (court indicates that decharacterized wastes are not held permanently in impoundments, a statement that is uniformly correct for wastewaters but not wastewater treatment sludges); 24 (court focuses on treatment of "liquids" in impoundments). At one point, the court also noted, in distinguishing between subtitle C and subtitle D surface impoundments, that sludges in subtitle C impoundments require further management in accord with subtitle C, id. at 24, n. 10, perhaps suggesting by negative implication that sludges in subtitle D impoundments do not.

Equally important, the court held that "RCRA requires some accommodation with (the) CWA", id. at 20, see also id. at 23, indicating that to some degree RCRA need not mandate a wholesale disruption of existing wastewater treatment impoundments, provided the CWA treatment system really achieves treatment equivalent to RCRA section 3004(m) treatment: "In other words, what leaves a CWA treatment facility can be no more toxic than if the waste streams were individually treated pursuant to the RCRA treatment standards." Id.

On the other hand, the opinion can be read more broadly to encompass requirements respecting surface impoundment integrity. The court's fundamental concern with dilution, echoing the requirements of section